BEFORE THE TENNESSEE REGULATORY AUTHORITY

NASHVILLE, TENNESSEE

January 25, 1999

IN RE: PETITION TO CONVENE A CONTESTED CASE PROCEEDING TO ESTABLISH PERMANENT PRICES FOR INTERCONNECTION AND UNBUNDLED NETWORK ELEMENTS	)	**DOCKET NO. 97-01262**

INTERIM ORDER ON PHASE I OF PROCEEDING TO ESTABLISH PRICES FOR INTERCONNECTION AND UNBUNDLED NETWORK ELEMENTS

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I. INTRODUCTION

This matter came before the Tennessee Regulatory Authority (the "Authority") at the regularly scheduled Authority Conference held on June 30, 1998, to make findings of fact and conclusions of law on the issues in Phase I of this matter. This proceeding was convened to establish prices for interconnection and unbundled network elements (UNEs). In Phase I, the Authority determined the adjustments for each cost model presented. In Phase II, the Authority will determine the prices for interconnection and unbundled network elements based on the cost studies filed in compliance with this Interim Order. The final prices will be based on criteria specified by the federal Telecommunications Act of 1996 and FCC Order No. 96-325. This is an interim Order, and shall be incorporated into the Final Order as if fully rewritten therein.

II. BACKGROUND

Enacted by the United States Congress to open segments of the telecommunications industry to competition, the Telecommunications Act of 1996 (the "Act") was signed into law and went into effect on February 8, 1996.[1] Section 252 (d) of the Act delegates to State Commissions the responsibility to establish rates for interconnection and network elements that: 1) are just and reasonable; 2) are based on cost "determined without reference to a rate-of-return proceeding;" 3) are nondiscriminatory; and 4) "may include a reasonable profit." In interpreting the Act, the FCC established pricing standards for the states to follow in establishing UNE prices, including a requirement that states use forward-looking costs in setting UNE prices.[2] The Eighth Circuit Court of Appeals, however, vacated a portion of the FCC order holding that, "the FCC exceeded its jurisdiction in promulgating the pricing rules."[3] The Eighth Circuit's ruling addresses the jurisdictional issue of setting local intrastate communications service prices and not the technical merits of the FCC's pricing methodology.

In 1995, the Tennessee General Assembly passed landmark legislation dramatically altering the regulation of the telecommunications industry and opening up that industry to tremendous opportunities for competition.[4] This legislation became effective on June 6, 1995, and enlarged the responsibility of this Authority by declaring "that the policy of this

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[1] Telecommunications Act of 1996, Pub. L. No. 104-104, 110 Stat. 56. This legislation has been codified at 47 U.S.C. §§ 251 et seq.

[2] FCC Order 96-325, In the Matter of Implementation of the Local Competition Provisions in the Telecommunications Act of 1996 (CC Docket No. 96-98) and Interconnection between Local Exchange Carriers and Commercial Mobile Radio Service Providers (CC Docket No. 95-185), (August 8, 1996).

[3] *See* Iowa Utilities Bd., et al v. F.C.C., 120 F.3d 753, 794 (8th Cir. 1997).

[4] Act of May 25, 1995, Ch. 408, 1995 Tenn. Pub. Acts 703, codified at Tenn. Code Ann. §§ 65-4-101, - 123 & 124, 65-4-201, - 203, - 207, and 65-5-208 to - 213 (Supp. 1996).

state is to foster the development of an efficient, technologically advanced statewide system of telecommunications services by permitting competition in all telecommunications service markets..."[5] Further, the Tennessee Act states that "the regulation of telecommunications services and telecommunications service providers shall protect the interest of consumers without unreasonable prejudice or disadvantage to any telecommunications service providers."[6] In the course of fulfilling these obligations, the level of UNE prices will have a significant impact on the development of local competition and the expansion of consumer choices associated with competition.

This proceeding was initiated as a contested case on the motion of the Authority on July 15, 1997, pursuant to a petition filed by BellSouth Telecommunications, Inc. ("BST") on June 23, 1997. BST's petition was filed to comply with the arbitration proceedings between BST and AT&T Communications of the South Central States, Inc. ("AT&T") (Docket 96-01152), and BST and MCI Telecommunications Corporation ("MCI") (Docket 96-01271), wherein the Directors adopted proxy prices for interconnection and network elements. These proxy prices were to be used in the interim period prior to approval of cost-based interconnection and unbundled network element prices. This proceeding examines the cost studies and proposals submitted by the parties to determine the prices for unbundled network elements.

This proceeding has been divided into two phases. Phase I consists of the Authority's decisions on adjustments to the cost models. After the parties submit compliant cost studies with the required adjustments, a decision on final prices will be

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[5] *See* Tenn. Code Ann. § 64-4-123 (1998).
[6] *Id.*

made in Phase II. This approach permits the Authority to examine the models using common inputs, when possible, in order to better identify the methodological differences in the two models.

III. PARTIES TO THE PROCEEDING

The following entities were granted intervention as parties with full rights of participation: AT&T Communications of the South Central States, Inc. ("AT&T"); Office of the Attorney General, Consumer Advocate Division ("CAD"); GTE Long Distance; MCI Telecommunications Corp. ("MCI"); NEXTLINK Tennessee ("NEXTLINK"); Time Warner Communications of the Mid-South; United Telephone-Southeast ("UTSE"); Sprint Communications Company, L.P. ("Sprint"); WorldCom, Inc.; LCI International Telecom Corp.; the Tennessee Municipal Telecommunications Group; Tennessee Cable Telecommunications Association ("TCTA"); American Communications Systems, Inc. ("ACSI"); and Brooks Fiber Communications of Tennessee, Inc. Intermedia Communications, Inc. was granted limited participation in this proceeding pursuant to its Petition.

IV. EXECUTIVE SUMMARY

Two (2) models purporting to reflect Total Element Long Run Incremental Cost (TELRIC) have been presented in this proceeding for calculating UNE prices: BST's "TELRIC Calculator" model and the Hatfield model presented jointly by AT&T and MCI. The other parties critiqued both models and recommended adjustments to the inputs.

The sponsors of each model claim their model is "forward-looking," but the models take different approaches in estimating forward-looking costs. BST contends that

the existing network configuration should be the basis for estimating forward-looking costs. Further, in light of the Eighth Circuit Court of Appeals' decision to strike down the FCC's pricing requirements, BST adds an embedded cost component (Residual Recovery Requirement referred to herein as "RRR") to the forward-looking costs of the loop and the port. This RRR is designed to recover the difference between forward-looking and historical costs. AT&T and MCI advocate the "scorched node" approach, as originally proposed by the FCC, in which the telephone network is theoretically rebuilt using the existing wire center locations.[7]

Although the specific methodologies and inputs differ, both models calculate the total investment required to provide the UNE and associated expenses related to that investment. The UNE investment includes the capitalized costs of the network facilities (e.g., cable, wire, poles, switches, plus materials and labor costs) to install these facilities. Indirect investments such as allocation of land and building costs are added to the direct investment discussed above. Model inputs concerning fill factors, structure sharing and available technologies drive the investment costs. Expenses, calculated as a percentage of the investment, are then applied to the investment amounts to arrive at the final estimates of UNE costs. Expenses include depreciation, maintenance expenses, administrative expenses, and a fair return on the investment. This Authority's decisions include adjustments to both the investment and expense inputs.

One of the most heavily argued issues in this proceeding involves the combination of UNEs and its effect on BST's provision of Integrated Digital Loop Carrier ("IDLC").

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[7] *See* FCC Order No. 96-325 at ¶ 685 (August 8, 1996).

IDLC is currently the most technologically advanced, least cost method of connecting the loop with the switch port. BST presented testimony that its use of IDLC is expected to increase in the future. BST argues, however, that it is not required to offer competing carriers IDLC because of the Eighth Circuit Court of Appeals' decision[8] in striking down the FCC rules which required incumbent local exchange carriers ("ILECs") to recombine UNEs for requesting carriers. The Court determined that it was the responsibility of the competing carriers, and not the ILECs, to "recombine" UNEs.[9] BST contends that IDLC is a combination of the loop and port and, in reliance upon the Eighth Circuit's opinion, the combination of elements such as the loop and port is the responsibility of the requesting carrier. AT&T and MCI argue that denying IDLC to competing carriers violates the nondiscriminatory provisions of 47 U.S.C. § 251(c)(3).

Considering the Eighth Circuit Court of Appeals' decision on network combinations, this Authority has determined that it would be imprudent to specifically order BST to offer IDLC to competing carriers. The Authority does, however, require that BST offer to competing carriers technologies that are both technically and financially comparable to the technologies that it serves to its own customers. This is consistent with the nondiscriminatory provisions of the Act. To this end, the Authority orders BST to offer an unbundled loop which will permit end users to obtain the same level of performance as that offered by IDLC. Additionally, the price of such an unbundled loop should be established so that it is no more than the equivalent of the loop and port cost associated with an IDLC connection.

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[8] Iowa Utilities Bd., et al v. F.C.C., 120 F.3d 753 (8th Cir. 1997).
[9] *Id.*, at 813.

The proposed nonrecurring prices for UNEs were also discussed in great detail in this proceeding. The competing carriers assert that the nonrecurring rates proposed by BST are excessive and serve as barriers to entry into local competition in violation of 47 U.S.C. §253. The adjustments ordered herein by the Authority shift a number of the costs included in the nonrecurring prices by BST to the recurring rates, thereby reducing the nonrecurring prices. These adjustments will permit BST to recover its costs while removing potential barriers to entry established by potentially anti-competitive prices.

The Authority does not choose a cost model in Phase I, but orders adjustments to both BST's TELRIC Calculator and the Hatfield model proposed by AT&T and MCI. The resulting cost estimates will be examined in Phase II of this proceeding. The Authority's Phase I findings are discussed below.

V. FINDINGS OF FACT AND CONCLUSIONS OF LAW

The Authority conducted hearings on the issues in this proceeding on November 17-21 and 24, 1997, and February 23 and 25-27, 1998. Post-hearing briefs were filed by the parties on March 20, 1998. Parties submitted proposed findings of fact and conclusions of law on May 15, 1998. Thereafter, the Directors of the Authority deliberated on the Phase I issues at a regularly scheduled Authority Conference held on June 30, 1998.

ISSUE 1: What cost methodology should the TRA use in setting interconnection and UNE prices?

The cost methodology is the overall conceptual framework that guides the cost calculations and against which the proposed cost models and inputs are tested for consistency. The cost models, including both the algorithms and inputs, provide the

means for implementing the cost methodology. In this way, the methodology and its implementation are distinguished and treated separately.

The parties all agree that a forward-looking methodology is the appropriate methodology to use in this proceeding. BST advocates using the forward-looking TELRIC methodology developed by the FCC. Sprint, UTSE, AT&T, ACSI and MCI have also recommended setting prices based on TELRIC plus a reasonable charge to recover shared and common costs. The Authority finds that prices should be established using the forward-looking economic cost methodology as defined by the FCC's TELRIC methodology, including an appropriate markup for the recovery of shared and common costs. This methodology ensures that costs used to set prices for UNEs will reflect the inputs, quantities, and prices faced by an efficient firm using the least-cost technology. Prices set in this manner will send the appropriate signals to market entrants and assist them in making decisions whether to build various network elements or facilities, to lease these facilities, or to resell the ILEC's services.

ISSUE 2: What cost model should be adopted for recurring UNE prices?

The cost models are the calculating devices or algorithms that generate UNE cost estimates from the model inputs. These inputs are given further consideration in the discussion of other issues in this proceeding. Attention, however, must be given to the consistency between the models and the cost methodology adopted by the Authority. Cost models may be considered estimators of cost because the cost generated by each model is only one of many possible estimates of the near-term future cost incurred by an efficient firm using the least-cost technology to provide UNEs throughout BST's

Tennessee service territory. While no model is expected to achieve infallible results, several models will produce reasonably close estimates of the near-term future costs. Neither AT&T and MCI's Hatfield Model nor BST's TELRIC Calculator is inherently inconsistent with the FCC's TELRIC methodology. Nonetheless, forward-looking economic costs are inherently hypothetical in nature and are intended to reflect what costs may reasonably occur in the foreseeable future. Whether the starting point is existing costs which are modified to reflect forward-looking efficient costs or the starting point is a "scorched node" with a network built using least-cost technology and forward-looking prices, one could arrive at reasonable approximations of the same by either route. Thus, the Authority concludes at this time that it is not reasonable to reject in its entirety either model on purely methodological grounds. As a result, the Authority sets forth specific adjustments to each model herein in an attempt to modify the models so that they may be consistent with the FCC's TELRIC methodology.

The Authority finds that the RRR component of BST's model is clearly inconsistent with the forward-looking economic cost methodology adopted by the Authority. The primary purpose of the RRR is to recover historical costs associated with the existing network. Including the RRR has the effect of converting BST's loop and port cost model into a traditional embedded cost model. The RRR violates both the TELRIC methodology and the Act[10] by including a recovery of historical embedded costs. For these reasons, the Authority concludes that BST's "Residual Revenue Requirement"

[10] *See* 47 U.S.C. § 252(d).

should be removed from BST's TELRIC Calculator model as it is inconsistent with the FCC's TELRIC methodology, the Act and the methodology adopted by this Authority.

ISSUE 3: What is the appropriate level of shared and common costs to be included in the prices for Unbundled Network Elements (UNEs)?

Shared costs can be directly attributed to two or more UNEs, while common costs are general costs that cannot be attributed to any UNE. While all of the parties agree that the prices for UNEs should include a "reasonable" level of shared and common costs, the parties differ on a definition of what is "reasonable." Thus, a determination of what is reasonable is essential to a resolution of this issue. While the FCC's Orders in CC Docket Numbers 96-98 and 95-185 regarding pricing of interconnection and unbundled network elements discuss joint (shared) and common costs at length, the Order does not define what the "reasonable level" of those costs should be.

The shared and common factors used in BST's TELRIC calculations are based on current market conditions and, despite the forward-looking adjustments, do not appear to be representative of a competitive marketplace. In addition, from a review and analysis of documents submitted by BST, the Authority finds that because BST's shared and common cost adjustments were calculated separately from the BST TELRIC Calculator, they are not easily verifiable.

BST's TELRIC Calculator model treats shared costs as a separate additive to the UNE costs, while the Hatfield model combines both shared and common costs. In addition, the Hatfield model treats more costs as direct instead of shared. Thus, while Hatfield's shared/common factor of 10.4% is appropriate for that model, it is not

reasonable for BST's TELRIC Calculator because the two (2) models treat shared costs differently.

Based on the record in this matter, the Authority finds the approach recommended by ACSI is the most reasonable option for determining which forward-looking shared and common costs to include in the TELRIC Calculator. ACSI proposes that a 15% markup to the direct UNE cost is representative of competitive pricing options actually implemented by local exchange telephone companies, including BST, and best reflects the forward-looking cost estimate in a competitive environment. Therefore, the Authority concludes that the BST TELRIC Calculator model should be adjusted to use a 15% shared and common cost markup factor. Adjusting this shared and common cost factor to 15% puts the TELRIC Calculator model and the Hatfield model on a consistent basis.

ISSUE 4: What are the appropriate fill factors and utilization factors?

Fill factors and utilization factors refer to the percentage of plant investment in use at a given time. Because the installation of telecommunications equipment requires a substantial investment, companies will install equipment for use in a capacity greater than that which is initially needed to allow for growth (spare capacity) without having to install additional equipment. As lines are activated or added, the percentage used or the utilization increases. The percentage used may never reach 100% in some instances because of defective equipment and/or lack of growth.

One of the major differences between the TELRIC Calculator model and the Hatfield model is the calculation of plant investment. The TELRIC Calculator assumes a higher plant investment when designing the network in order to have higher spare capacity

for future demand. Fill/utilization is then projected by incorporating this higher spare capacity. The Hatfield model assumes that the network is built to serve current demand and that less spare capacity is needed; therefore, the plant investment in the Hatfield model is lower than that assumed in the TELRIC Calculator model. The projected plant investment in the Hatfield model eliminates some spare capacity on the front-end; thus, the fill is higher than that used in the TELRIC Calculator model and projected utilization is based on that fill.

While BST correctly argues that fill factors should be reasonable, a reasonable projection is not necessarily the actual fill level in the network today as employed by BST's TELRIC Calculator model. During the hearing, the BST witnesses agreed with witnesses for the intervenors that the TELRIC Calculator model reflects embedded technologies. The fill and utilization factors proposed by BST appear to reflect the plant needed to meet future demand in a non-competitive environment, rather than the demand in a forward-looking competitive environment. The Authority finds that the fill and utilization factors should be reasonable and should acknowledge future technology, demand, cost and engineering as testified to by Dr. Marvin Kahn for ACSI. ACSI proposed that the following fill and utilization factors: 54.69% for distribution facilities, 76.94% for copper feeder and 76.94% for fiber feeder be used in the BST TELRIC model.[11] Based on this evidence, the Authority adopts the fill factors proposed by ACSI for use in the TELRIC Calculator model and finds that these factors are reasonable and

[11] *See* Pre-filed direct testimony of Dr. Marvin Kahn at pp. 45-53.

reflect the plant and technology that should be deployed to meet future anticipated requirements in a competitive marketplace.

ISSUE 5: What depreciation rates should be used in determining interconnection and UNE prices?

The parties have proposed three (3) sets of depreciation rates for consideration: (1) the FCC prescribed rates; (2) the prescribed rates established by the Tennessee Public Service Commission ("TPSC"); and (3) BST's financial reporting rates.

BST argues that the asset depreciation lives established by the FCC in 1993 are not accurate because such lives are too long. Nonetheless, BST admits that the book depreciation reserve as of January 1, 1997, using the 1993 FCC prescribed depreciation lives, result in a reserve surplus exceeding $100,000,000 (one hundred million dollars). This reserve surplus is a result of asset depreciation lives that are too brief rather than too long. The Authority has determined that the depreciation lives used in the TELRIC Calculator model were arrived at by calculating the average of the proposed lives for BST's nine (9) state region. These lives and net salvage factors have not been reviewed or adopted by the Authority.

Therefore, the Authority finds that BST's TELRIC Calculator model and the Hatfield model should use Tennessee-specific depreciation lives, salvage values and other inputs used in calculating the depreciation rates established by the TPSC in 1993. Use of these Tennessee-specific factors determined in 1993 will result in costs which will more accurately reflect conditions unique to Tennessee.

ISSUE 6: What cost of capital is appropriate for setting interconnection and UNE prices?

The overall cost of capital is generated by the cost of equity, the cost of debt, and the company's capital structure.

Issue 6(a): Cost of Equity

The Authority finds reasonable the testimony AT&T and MCI's witness Hershleifer that existing telephone companies are the best proxy group of firms for a wholesale UNE provider.[12] This finding eliminates BST witness Billingsley's cost of equity estimates from consideration because his Discounted Cash Flow ("DCF") and Capital Asset Pricing Model ("CAPM") analyses rely on his comparison group of firms selected from the general economy and not from the telecommunications industry.

The Authority rejects the non-constant growth DCF model proposed by AT&T's witness Cornell and finds that the constant growth DCF model proposed by Billingsley, without his adjustments for quarterly payment of dividends or flotation costs, should be utilized. This finding eliminates the Cornell/Hershleifer DCF and CAPM estimates, since both are dependent on the non-constant growth DCF formula.

The Authority adopts a cost of equity of 12.46% for use in all cost models. This percentage results from applying the unadjusted constant-growth DCF formula to the data on telephone companies provided in Attachment BC-4 to the pre-filed direct testimony of Cornell. The mixing of Cornell's comparison group firms with Billingsley's formula is acceptable since both Billingsley and Hirshleifer stated that there was no relationship between the selection of firms and the models/formulas to be applied.[13]

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[12] *See* Transcript of Hearing, Vol. VIII D at pp. 242-243.
[13] *See* Transcript of Hearing, Vol. III D, at pp. 276-277 and Vol. VIII, at pp. 245-246.

Issue 6(b): Capital Structure, Cost of Debt & Overall Cost of Capital

The witnesses Cornell, Hirshleifer and Billingsley essentially agree that a capital structure of 40% debt and 60% equity is reasonable. Their recommended cost rates for debt are 7.06% (Cornell/Hirshleifer) and 7.30% (Billingsley), a difference of twenty-four (24) basis points. These twenty-four (24) basis points translate into only eleven (11) basis points difference in the overall cost of capital.

Ideally, the Authority should adopt forward-looking estimates of the cost of capital for a wholesale UNE-leasing business serving BST's Tennessee service territory. On this basis, Billingsley's 7.30% cost of debt is more forward-looking than that proposed by Cornell/Hirshleifer. Cornell calculates BST's cost of debt as of December 31, 1996, whereas Billingsleys applies a longer term relationship (the historical spread between AAA utility bonds and U. S. Treasury Bonds) to a more current cost indicator (average T-bond yield for July-September 1997).[14]

On this basis, the Authority adopts the overall cost of capital of 10.40%, based on a capital structure of 40% debt, at a cost rate of 7.30%, and 60% equity, at a cost rate of 12.46%.

ISSUE 7: How should network maintenance expense be calculated for determining UNE prices?

Plant specific expense accounts are used in both models to develop the maintenance costs to be included in the UNE prices. Plant specific accounts include most of the expenses for maintaining the telephone network. Due to technological advances, the direct and indirect costs of maintaining the telephone network have declined over the

[14] *See* Pre-filed rebuttal testimony of Billingsley at pp. 27-28.

past ten (10) years and are expected to continue to do so in the future. BST has been able to reduce its workforce, at least in part, as a result of increased automation in network maintenance. For example, a BST employee can test for trouble on a subscriber's loop without ever having to leave his or her office. All of the parties agree that this type of productivity should be reflected in the forward-looking costs of UNEs. Therefore, the Authority must determine a reasonable level of productivity to include in the calculation of UNEs.

BST, AT&T/MCI and ACSI presented proposals for reflecting productivity in the maintenance costs of UNEs. All three (3) proposals used historical 1996 plant specific expenses as a starting point for calculating maintenance costs. The proposals vary from that point. Each of these proposals uses a different point in the future for estimating forward-looking costs and a different adjustment factor for calculating the productivity adjustment.

The Authority rejects the AT&T and MCI proposal of 11% of plant specific expenses for line testing. Furthermore, it is not reasonable to assume, as AT&T and MCI suggest, that BST will not test any of the loops it sells to competitors. BST must have assurance that it is providing quality network components to competing carriers the same way it provides quality service to its own customers. Additionally, AT&T suggests that plant specific expense will decline by 7% each year for five (5) years, resulting in a proposed 50% reduction in 1996 plant specific expense. AT&T witness Art Lerma provided testimony concerning this 7% declining factor which BST did not refute during the hearing.

Based on the evidence presented, the Authority adopts BST's normalized 1996 plant specific expense less 22.5% for calculating the maintenance expense to be included in the UNE cost in all models, including the nonrecurring and collocation models where appropriate. This 22.5% figure represents a decline in the plant specific expense of 7% compounded for a three (3) year period. This three (3) year time period is comparable to the time period proposed by BST in its model. Additionally, 7% is comparable to the productivity adjustment required by the FCC in its price cap regulation of incumbent local exchange carriers.

ISSUE 8: Whether tax inputs need to be adjusted

Both cost models, BST's TELRIC Calculator model and the Hatfield cost model use ad valorem tax rates as an input applied to investments. The tax rate used affects the final price generated by each model. BST witness Caldwell testified that BST did not object to the use of current ad valorem tax rates as recommended by the CAD. No party objected to the models using current ad valorem tax rates. Therefore, the Authority adopts the most recent ad valorem (1998) tax rates for use in the BST TELRIC Calculator model and the Hatfield model.

ISSUE 9: How should monthly prices be determined?

When an annual cost is to be recovered by monthly payments and those monthly payments are determined by dividing the annual cost by twelve, excess recovery results through compounding. BST agrees that the method presented by the CAD is conceptually valid and states that the cost of the loop would be reduced by only $.48 if monthly

compounding is utilized, absent changes to the survivor curves.[15] The CAD explains that survivor curves are an ingredient or component of the process of developing the depreciation rates themselves. Once a determination is made as to the life of the asset, it is not necessary to modify the model relative to survivor curves in order to get an accurate or proper calculation of monthly rates.[16]

BST asserts that the effect of the change has a minimal impact on cost (i.e. $.48 per loop, per month). BST's assertion is questionable if BST is addressing a SL 1 loop with a revised monthly rate of $23.21, because this reduction is in excess of 2%. Therefore, BST's statement that this has a minimal impact is questionable.

The Authority finds that unbundled network elements should be priced in a manner that considers the time value of money by employing monthly compounding and calculating the monthly unbundled network element rate developed from an annual cost. Both the TELRIC Calculator model and the Hatfield model should reflect monthly compounding using the approved overall cost of capital when converting annual costs to unbundled network elements.

ISSUE 10: What is the appropriate drop length to be used?

The network interface device on the side of the customer's premises is connected to the rest of the network by a drop wire which runs to either the pole or the pedestal. The assumed length of a drop has a direct impact on the cost of the loop.

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[15] Survivor curve is used with the projected life of the asset in determining the average remaining life of the asset. The average remaining life is the estimated average of the future life expectancy of investment in a particular plant account. Average remaining life is divided into adjusted net depreciable asset value to determine the depreciation rate.

[16] *See* Transcript of Hearing, Vol. XD, at p. 301 (Testimony of Mr. Hickerson).

The drop lengths proposed by BST vary by the type of drop (aerial or buried) and the type of customer (business or residence). These lengths were based on the opinions of outside plant personnel and were not supported by evidence in the record. AT&T's proposed drop length of 100 feet is reasonable for Tennessee based on the seventy-three (73) foot national average calculated in a Bellcore study.[17] Moreover, AT&T argues that in a forward-looking environment the drop length will be shorter than that currently in the network today.

Taking into consideration that the models should project a drop length specific to Tennessee on a forward-looking basis, the Authority finds that a 100 foot drop length proposed by AT&T is the most reasonable proposal that best represents conditions in a forward-looking environment and is therefore adopted by the Authority for use in the BST TELRIC Calculator model.

ISSUE 11: Should loop prices be based on geographically deaveraged costs or statewide average costs? If deaveraged, to what level?

Deaveraging rates means that the loop rates are based on cost within each geographic area. For example, separate loop costs would be developed for urban areas and rural areas. BST does not support deaveraged loop costs and states that the TELRIC Calculator model will not deaverage loop costs. Intervenors addressing this issue advocate the adoption of deaveraged rates.

The Authority finds that a decision regarding deaveraging of loop rates should be considered in Phase II after compliant cost studies are received and reviewed by the Authority.

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[17] The Bellcore study was a national study conducted in 1983-1985.

ISSUE 12: What is the appropriate loop sampling method for determining permanent prices?

BST states that the loop model in its cost study retains specific characteristics of an average loop in Tennessee as well as vendor prices for various loop components. Loop sampling is used to calculate material costs for a narrowband loop and other UNEs related to the loop.

BST's loop model is based upon a sample of BST loops in Tennessee that are reconfigured to represent the most efficient forward-looking technology. Relative percentages of different types of BST loops in Tennessee are developed from the sample data used to calculate the weighted average cost of a loop. This weighted average loop cost is then combined with capital cost and other expense factors to arrive at the final loop cost proposed by BST.

BST witness Ellis Smith testified that the loop sample is based on a stratified systematic sampling procedure applied to an information systems database containing 1995 customer records. This sampling procedure produced a sample of about 250 loops for residential service and about 250 loops for business service. Mr. Smith also testified that his objective was to "draw a sample of [BST's] loops which could be used to represent the universe of loops provided by the company."[18] To achieve this, he took a loop sample with enough observations to ensure that "a measured characteristic or variable of the sample be within the range of five (5) to ten (10) percent of the actual average loop investment of the universe of loops."[19]

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[18] *See* Pre-filed direct testimony of Mr. Smith at p. 10.
[19] *See* Pre-filed direct testimony of Mr. Smith at p. 14.

Witnesses for ACSI (Dr. Kahn), AT&T (Mr. Heikes), and TCTA (Mr. Barta) criticized the method used by Mr. Smith to sample loops for BST's loop model. These witnesses testified that loop data was available for a variety of service categories or strata including residential, single line business, PBX, ESSEX, dedicated WATs, public and semipublic coin, and COCOTs (Customer Owned Coin Operated Telephones). Nonetheless, the sample used in the loop model was restricted to loops from residential and single line business service strata. The omitted strata of loops represents more than 290,000 lines, or about 12% of all of BST's lines in service in Tennessee during 1995. Mr. Smith acknowledged that the omitted strata do not allow the loop model to calculate the cost of a loop that is representative of all the loops in Tennessee.[20] Further, BST witness Mr. Zarakas agreed that the omitted loops are generally less costly than those included.[21]

The Authority finds that the omission of certain loops from the loop model sample is a serious flaw in BST's cost study. Nevertheless, correcting the existing BST sample design would likely be burdensome both to execute and for other parties to verify due to the complexity of the sample (calculation) etc., and the time involved. To control for the sample bias and update the data, the parties opposing BST's sample recommended adjusted inputs to the Loop Model that rely on a broader sample of BST loops based on 1996 data.

[20] *See* Transcript of Hearing, Vol. IV E, at pp. 402-403.
[21] *See* Transcript of Hearing, Vol. II C, at p. 103.

TCTA witness Mr. Barta and ACSI witness Dr. Kahn recommended nearly the same residential weighting, but their recommended business weights differed.[22] Dr. Kahn suggested separate weights for multi-line and single-line business loops, but BST's Loop Model does not employ separate weights for different types of business loops. TCTA witness Mr. Barta proposed a more realistic weighting than those used in the TELRIC Calculator because they included all service categories. Therefore, the Authority adopts the weights proposed by TCTA of 69.22% residential and 30.78% business for the BST loop model.

Loop sampling is not an issue for the Hatfield model because it designs loops for each wire center and does not use a sample of existing loops.

ISSUE 13: Is it necessary to set prices for network element combinations? Should Integrated Digital Loop Carrier (IDLC) be offered to competing carriers?

This issue addresses whether certain combinations of network elements, in addition to individual network elements, should be offered to competitive local exchange carriers and prices set for such combinations.

The BST TELRIC Calculator model assumes non-integrated technology while the Hatfield model uses IDLC technology. Although BST does not dispute that IDLC is an efficient forward-looking technology, it argues that offering IDLC is in essence the provision of network combinations. BST witnesses testified throughout this proceeding that IDLC involves the integration of the loop into the switch, the mandated provision of which BST contends to be inconsistent with the decision in Iowa Utilities Bd., v. F.C.C.,

[22] *See* Pre-filed direct testimony of Dr. Kahn at p. 58 and Exhibit MHK-5; and Pre-filed direct testimony of Mr. Barta at p. 33.

120 F.3d 753 (8th Cir. 1997). BST asserts that because it is not required to provide IDLC technology under the Eighth Circuit Court's decision, it will not offer IDLC to CLECs. BST relies on the fact that IDLC is available to CLECs through resale of service to existing customers.

AT&T and MCI presented testimony that IDLC is a state of the art technology superior to the universal digital loop carrier ("UDLC") technology proposed by BST. Witnesses for AT&T and MCI assert that UDLC does not have the same transmission qualities of IDLC. UDLC requires conversions of analog signals when reaching the central office, while IDLC requires no such conversions. Parties other than BST maintain that BST's refusal to provide IDLC results in discrimination and is a barrier to competition.

The Authority finds that BST is required to provide nondiscriminatory access to network elements such as loops. To this end, BST should provide loops to a CLEC that are equivalent to the loops used by BST to serve its customers. Therefore, the Authority concludes that for customers served by IDLC technology, BST must offer an unbundled loop which will allow end users to obtain the same level of performance as that offered by IDLC. Specifically, the unbundled loop should deliver to a CLEC a digital signal which is equivalent to that which enters a switch when IDLC is employed. No additional digital to analog or analog to digital transformation should occur. The price of such an unbundled loop should be computed by calculating the combined cost of a loop connected to a switching port with access to all software features using IDLC technology. The loop cost would be the difference between this combined cost and the cost of an unbundled

switching port with access to all software features. Additionally, the cost of such an unbundled loop should be established so that it is no more than the equivalent of the loop cost associated with an IDLC connection, "plus, if supportable, any reasonable provisioning cost consistent with the Act, the Eighth Circuit decision, and all decisions in this proceeding."[23]

ISSUE 14: What is the proper method to calculate switch costs?

None of the parties argued that a price for a switching port with all vertical features should not be established. Hence, the forward-looking cost of a switching port with all vertical features should be calculated. The marginal mode of SCIS/MO[24] assumes a switch with all features, and assigns Getting Started Investment ("GSI")[25] to non-traffic sensitive costs of the switching port. This approach is appropriately consistent with TELRIC methodology.

AT&T witness Ms. Petzinger testified that the use of the marginal mode of SCIS/MO avoids the need to allocate the GSI to per minute costs of individual vertical features. Under this approach, per minute costs of switching should reflect only the actual

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[23] Director Kyle moved that when the loop and port are connected in the manner employed by IDLC, they effectively become a single network element which must be offered to competing carriers. This motion failed to pass on a majority vote. Chairman Greer, while not disagreeing with Director Kyle, determined that the record indicated that the adoption of an unbundled loop with performance and price comparable to that of IDLC could be an alternative to the offering of IDLC. His motion called for the provision of an unbundled network element loop that provides equivalent performance to IDLC and the cost of such a loop must be no more than the incumbent company incurs itself when offering such performance to one of its own customers. That motion was amended by Director Malone to include provisioning cost. This motion, as amended, passed with a vote of two to one. *See* Transcript of June 30, 1998, Authority Conference at pp. 26-30.

[24] The switching cost component of BST's cost study relies heavily on Bellcore's Switching Cost Information System ("SCIS"). The SCIS is comprised of two interrelated programs: the SCIS Model Office ("SCIS/MO") and the SCIS Intelligent Network ("SCIS/IN"). These programs were originally developed by Bellcore to identify the investments associated with switching features and services.

[25] GSI includes initial investment for a central processor and related equipment, maintenance and test equipment, spare components, miscellaneous equipment, and investment for under-utilized equipment known as "breakage."

traffic sensitive costs of a full-feature switch. To remove the GSI component of usage costs, Ms. Petzinger proposes a method of adjusting the per minute cost calculations. No other party criticized Ms. Petzinger's formula.

Ms. Petzinger also stated that it is appropriate for the BST cost study to use larger switch vendor discounts than the current respective default input values. These discounts are more representative of what will be available to BST on a forward-looking basis.[26]

Since BST terminates both IDLC and analog loops into its switch ports, AT&T proposes to assume a combination of IDLC and analog lines terminating into switch ports. This proposal differs from the BST cost study's assumption that all line terminations will be analog on a forward-looking basis.

The Georgetown Consulting Group ("GCG panel") testified for BST regarding the appropriate input values for the switching cost component of the Hatfield model. Testifying for AT&T, Mr. Wood pointed out that the GCG panel did not explain fully the standards, sources, or calculations used to derive their suggested alternative input values. The input values suggested by the GCG panel are derived largely from BST's 1995 books of account or from the judgment of unspecified BST personnel.[27]

Based on the record, the Authority finds that the price of the switched port should include all features. BST should rework its switched cost studies to: (1) use the output from the marginal mode of SCIS/MO;[28] (2) recalculate switched usage charges (per MOU) with the following formula: total switched investments, less nontraffic sensitive

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[26] *See* Pre-filed rebuttal testimony of Ms. Petzinger at pp. 12-20.

[27] *See* Pre-filed rebuttal testimony of Mr. Don Wood at p. 139 lines 17-18 and p. 140 lines 1-9.

[28] This requirement has two simultaneous effects: (1) it requires the BST model to provide the cost of a switching port that includes all available vertical features; and (2) it requires the BST model to allocate getting started investments (GSI) to non-traffic sensitive costs.

line termination and getting started investments, divided by minutes equivalent of busy hours CCS;[29] (3) change vendor discounts used as inputs in the BST switched cost studies to the percentages given on line 6, page 19 of Ms. Petzinger's pre-filed rebuttal testimony; and (4) assume 70.38% IDLC and 29.62% analog line terminations in calculating switching port costs. The Authority rejects the changes to the Hatfield model as suggested by BST witnesses.[30]

Additionally, the price of the switched port should include all features with no additional charges, specifically no "glue" charges.[31]/[32]

ISSUE 15: What is the appropriate level of structure sharing to be included in the prices for Unbundled Network Elements?

Structures such as utility poles, trenches and conduit are used by multiple utilities. For example, a telephone pole may have attachments by the electric utility, cable company as well as the telephone company. These utilities pay the telephone company for use of the pole. The Authority must determine how many utilities will be sharing the costs of these shared support structures on a going-forward basis.

BST's TELRIC Calculator model assumes that current levels of structure sharing will remain in the future. BST's calculations are based on current rent revenues and expenses received from structure sharing but the average level of sharing is not disclosed. According to BST witness Gray, the current level of structure sharing is not expected to

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[29] This requirement complements the first requirement by specifying how traffic-sensitive costs are to be calculated when BST employs the SCIS/MO in marginal mode. CCS is a measure of switch usage equivalent to 100 call seconds.

[30] *See* Vol. II of June 30, 1998, Authority Conference Transcript, motion made by Director Malone at p. 35.

[31] "Glue" charges are referred to as a payment to a company for leaving network elements functionally intact or for combining two separate unbundled network elements.

[32] *See* Vol. II of June 30, 1998, Authority Conference Transcript, motion amended by Director Kyle at p. 36.

change because in many instances it is not compatible to combine electric lines and telephone lines on the same pole. He also pointed out that trench and conduit sharing depends heavily on timing. Mr. Gray indicated that often when the electric company digs a trench to bury cable, BST and the cable company are typically not ready to lay cable and, therefore, sharing of the trench does not occur.

AT&T presented testimony suggesting that with the introduction of local competition the opportunities and need for structure sharing will increase and thus the amount of sharing should increase. AT&T also pointed out that the Telecommunications Act requires structure sharing. AT&T's Hatfield model presents a matrix for structure sharing that varies by density zone. For most density zones, the Hatfield model assumes that three (3) other entities will share the aerial structures (utility poles) with BST. For buried distribution cable, the Hatfield model assumes that two (2) other entities will share the trench with the telephone company.

The evidence presented by AT&T and ACSI demonstrates that Hatfield's aerial sharing assumption is reasonable and should be reflected in the TELRIC Calculator model. Increased competition should increase the amount of aerial structure sharing. Nevertheless, neither AT&T nor MCI supported Hatfield's assumption that two (2) other entities, on average, will share buried distribution facilities (trenches). On a forward-looking basis, however, it appears reasonable to assume that one (1) other entity, on average, will be sharing buried distribution facilities with BST.

The Authority finds that BST's TELRIC Calculator model should be adjusted to reflect three (3) other entities equally sharing aerial support structures (poles) with BST

for a total of four (4). Further, the Hatfield model should be adjusted to reflect one (1) other entity sharing the buried distribution structures with BST for a total of two (2).

ISSUE 16: What is the appropriate level of operational support services (OSS) costs to be included in permanent prices?

In FCC Order 96-325, OSS is generally defined to include those systems and databases required for pre-ordering, ordering, provisioning, maintenance and repair, and billing.[33] The Authority must determine the appropriate investment, major inputs, cost calculation and the manner in which the cost will be recovered for the Operation Support Systems. The investment is based upon the automated systems put in place to process orders. A major input used to calculate OSS costs is the fallout rate. Fallout refers to the quantity of CLEC orders that "fall out" of the automated process and require manual processing. As testimony during the hearing demonstrated, some orders require manual processing by BST while others are merely returned to the CLEC for corrections. Recovery of costs involves a determination of who pays the projected costs (ILEC, CLEC, etc.) and whether these costs will be recovered in nonrecurring rates or in recurring rates.

The BST TELRIC Calculator model classifies OSS costs into two (2) categories: electronic interfaces and legacy systems. BST, through its witness Daonne Caldwell, defined these two (2) categories as follows: "Electronic Interfaces are new systems developed by BST for the sole purpose of providing CLECs electronic pre-ordering, ordering, maintenance and billing capability. Legacy systems are systems that existed

[33] FCC Order 96-325, ¶ 505.

prior to local competition and are used by BST to perform numerous functions in the provisioning of telecommunications service."[34]

BST recommends a 20% fallout rate, claiming that in the beginning of IXC ordering there was a fallout of 30% which has since dropped to 10%. The record contained evidence that the UNE process is at least as complex as the interexchange access process, therefore, the maximum rate should be 10%. ACSI proposes a fallout rate lower than 10% in order to recognize efficiencies that will be gained over time.

Recovery of OSS costs as a nonrecurring rate could potentially be a barrier to market entry by telecommunications providers.[35] Additionally, all carriers' customers, both ILEC and CLEC, receive the benefit of Operational Support Systems and should bear a portion of those costs. Therefore, ILECs and CLECs alike should pay a recurring rate for OSS.[36]

The Authority finds that for all cost models, the OSS costs should be recovered from all carriers (ILEC, CLEC, etc.) through a recurring rate. All expenses associated with the Electronic Interfaces (development expenses, hardware equipment, maintenance expenses associated with new systems and program enhancements to four Legacy Systems) should be capitalized and recovered over the life of OSS using the appropriate depreciation lives adopted in Issue 5. Additionally, the Authority adopts a fallout rate of 7%, within the range proposed by the parties, to be used in the TELRIC Calculator cost model.

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[34] Rebuttal testimony of Daonne Caldwell, p. 22 lines 23-25 and p. 23 lines 1-5.
[35] Inclusion of OSS costs in nonrecurring rates increases the "getting started" costs to the new entrant.
[36] Legacy system costs are included in the shared and common factors.

ISSUE 17: How should nonrecurring costs be calculated? What inputs, if any, should be adjusted?

Nonrecurring costs are one-time expenses associated with establishing, disconnecting or rearranging unbundled network elements (UNEs) purchased from BST. BST calculates nonrecurring costs through the TELRIC Calculator model, while AT&T/MCI calculates nonrecurring costs through their NonRecurring Cost Model (NRCM). The establishment of reasonable nonrecurring costs is essential to the development of a competitive environment for local telephone service. If nonrecurring prices are set too high, they could substantially impede this development of competition by creating barriers to entry in violation of Section § 253 of the federal Telecommunications Act. The Authority decided the issues relating to nonrecurring rates as follows:

Issue 17(a): What amount of shared and common costs should be recovered in calculating nonrecurring prices?

Shared costs are costs that are shared by two or more products or services, but do not span all of the activities of a company. Shared costs include such products or services as general purpose computers, engineering expense and network administration. Common costs are common to a company as a whole and cannot be directly assignable to an individual product or service. These costs include the costs of legal and administrative functions.

Nonrecurring costs include the wages, benefits and supervisory expenses related to nonrecurring work activities. Nonrecurring costs are made up primarily of directly assignable labor costs calculated by multiplying the number of work hours necessary to

complete all nonrecurring activities by the "loaded" labor rate (i.e., includes directly associated costs of benefits, vacation, etc.).

The AT&T and MCI Nonrecurring Cost Model does not include labor expense loadings for motor vehicles and tools, expenses directly associated with most plant work activities. There are no shared costs included in the development of AT&T's rates, such as land and building space, office equipment, personal computers, etc. These costs are an integral component of the total TELRIC labor rates as ordered by the FCC.[37]

The labor rate in BST's model includes a component for shared costs. BST calculates the labor rates with all of the direct costs, which results in the per dollar actually paid to the individual performing the function. All elements that would be directly associated, such as benefits and vacation, etc., are then included along with a shared component in the labor rate. This calculation results in what is called TELRIC labor rate. A percent (5.39%) is then added to the labor rate to recover common costs, the same percentage used in the recurring study.

Shared and common costs are not directly assignable to nonrecurring work activities and therefore, should be recovered through recurring prices. Exclusion of shared and common costs from nonrecurring rate elements could enhance competition in the local market by removing a potential barrier to entry.

To prevent the possibility of any double recovery of shared and common costs in both the recurring and nonrecurring cost studies, the Authority finds that all shared and common costs should be recovered in recurring rates.

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[37] Rebuttal testimony of William P. Zarakas and Daonne Caldwell, p. 33 lines 24-25.

Based on the evidence in the record, the Authority finds that only directly assignable costs should be recovered through the nonrecurring charges. The Authority determines that shared and common costs should not be included in calculating nonrecurring costs and that both cost models should reflect this adjustment.

Issue 17 (b): What amount of Operation Support System (OSS) costs should be recovered in nonrecurring prices?

Since both ILEC and CLEC customers will receive benefit from the Operational Support Systems, all carriers should bear a portion of the costs in recurring prices. Recovering OSS costs in recurring prices as opposed to recovering those costs in nonrecurring prices also eliminates a potential barrier to entry that an additional nonrecurring charge could present to some telecommunication service providers.

The Authority finds that all OSS costs should be removed from the nonrecurring rates. Costs associated with OSS should be recovered from all carriers (ILECs, CLECs) in a recurring rate per loop. More specifically, all OSS costs should be capitalized and recovered over the life of the Operational Support Systems using the appropriate depreciation lives adopted in Issue 5.

Issue 17(c): Which work activities should be included in developing nonrecurring prices?

According to the parties, over two hundred (200) work activities were included in developing nonrecurring costs. The parties, however, focused their attention on only a few major work activities. To a large extent the number of work activities included in the models is determined by the fallout rate. When an order "falls out" of the electronic

process, it requires some type of manual processing. The quantity of orders that fall out has a direct impact on the quantity of work activities included in the cost studies.

AT&T and MCI focused on the Local Customer Service Center ("LCSC") work activity. They argued that the BST TELRIC Calculator model overstates the work time required at the LCSC after an order falls out by including six (6) minutes of work time per order.

The BST model assumes that each fallout order will take six (6) minutes to process: three (3) minutes for connection of the loop and three (3) minutes for disconnection of the loop. A CLEC order sent to BST, however, will either be for connecting or disconnecting service, but not for both.

Based on the evidence in the record on this issue, the Authority finds that all work activities associated with fallout should be based upon a 7% fallout rate.[38] Also BST should modify its nonrecurring cost model to reflect only three (3) minutes of work activity per order at the Local Customer Service Center when an order falls out.

Issue 17(d): What amount of costs associated with Cross-Connects should be recovered in nonrecurring prices?

AT&T argues that BST's TELRIC Calculator model captures all cross-connect costs in recurring prices and in nonrecurring charges, resulting in a double recovery by BST. Nonetheless, AT&T did not bring forth sufficient evidence to demonstrate that BST has, in fact, double recovered a portion of its cross-connect costs. Further, AT&T did not demonstrate that it is inappropriate to recover a portion of cross-connect costs in nonrecurring charges. The cost studies submitted by AT&T and MCI recover of a portion

[38] This is consistent with the findings of the Authority in Issue Number 16.

of the cost of cross-connect in nonrecurring charges as well as a portion in recurring charges. Consistent with the decision in Issue 17(a),[39] the Authority determines that no adjustments to the BST TELRIC model are needed for cross-connect costs.

Issue 17 (e): What amount of costs associated with testing of unbundled network elements should be included in calculating nonrecurring prices?

Loops should be tested by BST to provide the necessary level of functional assurance as required by CLEC interconnection agreements and to ensure BST's network integrity. Also, by testing all loops as opposed to testing at the option of the CLEC, BST could possibly avoid potential disagreements with CLECs regarding whether or not testing was ordered.

AT&T and MCI argue that since BST proposes to recover costs for testing in recurring and nonrecurring prices, BST is double recovering the same costs. Inclusion of all costs associated with testing in recurring prices ensures that this is not repetitive recovery of the costs.

The Authority finds that all costs for loop testing should be removed from the nonrecurring rates. Testing is performed over the life of the loop. Therefore, the costs associated with all loop testing are being recovered in recurring prices as part of ongoing maintenance of the loop. The Authority determines that BST should adjust its TELRIC Calculator model to recover all costs associated with testing in recurring rates. Since AT&T's Hatfield model recovers all costs associated with testing in recurring rates, the Authority determines that the Hatfield model needs no such adjustment.

[39] As to Issue 17(a), the Authority found that only directly assignable costs should be recovered through the nonrecurring charges. Further, the Authority determined that shared and common costs should not be included in calculating nonrecurring costs and that both cost models should reflect this adjustment.

ISSUE 18: What is the appropriate level of disconnect costs to be included in the nonrecurring price?

BST's nonrecurring installation charges include costs of disconnection. During the hearing, BST witnesses advocated that disconnect costs should be included in and collected with the installation costs because costs are incurred to disconnect the customer. BST's witness Ms. Caldwell however, stated that BST is not opposed to charging for disconnect costs at the time of disconnect.

The Hatfield model calculates the cost to disconnect separately from installation in order to reflect nonrecurring costs accurately. The calculation is dependent upon whether a new entrant chooses to disconnect the feature or function at the time an end user cancels service, or the new entrant wants to maintain the service, feature or function so that it is available for a future customer.

Presently, ILECs commonly "disconnect" UNEs by software command only (i.e., without physical disconnection of any sort.) This activity is referred to as 'soft dial tone' and requires no manual work. Soft dial tone is the term used to describe the service which is left in place to allow the customer to dial 911 or connect to the ILEC to establish new service. The nonrecurring installation charges that ILECs propose to charge new entrants invariably reflect the costs of physical reconnection, regardless of whether the facilities in question were ever physically disconnected in the first instance. Therefore, ILECs should only receive the revenue for the disconnect at the time the actual disconnection occurs.

The Authority finds that disconnect costs should be separated from installation costs and should be assessed at the time of disconnection. CLECs should not be required to pay for disconnection unless that activity is actually performed. Therefore, the

Authority determines that nonrecurring costs should be separated by installation and disconnection.

Given a soft dial tone environment, where service is left in place, the Authority finds that there should be no disconnection costs for physically disconnecting an access line. Therefore, the Authority determines that BST's cost model should be adjusted to remove the costs associated with physically disconnecting a customer in a soft dial tone environment. This determination does not imply that there can be no cost for disconnection; however, that portion of costs associated with physically disconnecting a line in a soft dial tone environment should be removed from the cost study. Since AT&T has modeled the cost of disconnection separately, the Authority determines that the Hatfield model needs no adjustment.

ISSUE 19: What approach should be adopted for calculating prices for physical collocation? What inputs, if any, should be adjusted?

AT&T's and MCI's Hatfield model bases collocation costs on a modern efficient building designed on a best practices approach to locating BST and CLEC equipment in a new building. This model follows the FCC approach by estimating the forward-looking costs of a new theoretical network with only the locations of the present central offices being fixed. AT&T and MCI argue that CLECs should not be burdened with old building rehabilitation costs such as new HVAC systems, ADA requirements, wall demolition, asbestos removal, etc. AT&T also argued that unreasonably high rates for collocation are a barrier to entry in Tennessee.

BST argues that AT&T and MCI are not taking the real world into account in their proposal. BST asserts that collocation, by its very nature, is within its existing

buildings and that CLECs should compensate BST for its costs to build, reconfigure, or rehabilitate its buildings to accommodate the CLECs. Nevertheless, evidence was presented by AT&T and MCI demonstrating that BST's rates are out of line with the independent construction guidelines of the RS Means Company. Further, BST offered little evidence to support its rates.

The Hatfield model establishes postal type rates for these services based on the average distance between BST and the CLEC's equipment in a new efficient building. BST argues that grouping the collocators in one square configuration, as the AT&T and MCI model does, is not practical for a real collocation arrangement.

The Authority adopts the AT&T and MCI collocation approach for calculating the rates for physical collocation with one adjustment. The AT&T and MCI collocation model should be adjusted to increase the width of the common area space in accordance with the Standard State Building Code. This will increase the width of the common area by fourteen inches (14") from seven feet six inches (7'6") to eight feet eight inches (8'8") as recommended by BST witness Dorissa Redmond.

IT IS THEREFORE ORDERED THAT:

1. The forward-looking economic cost methodology as defined by the FCC's TELRIC methodology, including an appropriate mark-up for the recovery of shared and common costs, shall be used to set permanent prices for UNEs.

2. Neither model (TELRIC Calculator or Hatfield) is rejected or accepted at this time. The Residual Revenue Requirement underlying BST's UNE prices is rejected.

3. BST's TELRIC Calculator model shall be adjusted to use the fifteen percent (15%) shared and common markup (factor) as recommended by ACSI.

4. BST's TELRIC Calculator model shall use a distribution fill of 54.69%, fiber feeder fill of 76.94%, and copper feeder fill of 76.94% as recommended by ACSI.

5. Both the TELRIC Calculator model and the Hatfield model shall use Tennessee specific depreciation lives, salvage values and other inputs used in calculating the depreciation rates established in 1993, by the Tennessee Public Service Commission, Docket No. 92-13527.

6. Both the TELRIC Calculator model and the Hatfield model shall use 10.40% overall cost of capital, based on a capital structure of 40% debt at a cost of 7.30% and 60% equity at a cost of 12.46%.

7. BST's normalized 1996 plant specific expense shall be reduced by 22.5% for calculating the maintenance expense to be included in the UNE costs in all models, including the nonrecurring and collocation models where appropriate.

8. The 1998 ad valorem tax rates shall be used in the TELRIC Calculator model and the Hatfield model.

9. Unbundled network elements shall be priced in a manner that considers the time value of money by employing monthly compounding in calculating the monthly unbundled network element rate developed from an annual cost. Both the TELRIC Calculator model and the Hatfield model should reflect monthly compounding using the approved overall cost of capital when converting annual costs to unbundled network element rates.

10. The BST TELRIC Calculator model shall be adjusted to use a one hundred foot (100') drop length.

11. The decision regarding deaverging of loop rates is reserved for Phase II after the compliant cost studies from the parties are received and reviewed by the Authority.

12. The BST TELRIC Calculator model shall use weights of 69.22% residential and 30.78% business as input values in its Loop Model.

13. For customers served by IDLC technology, BST shall offer an unbundled loop which will permit end users to obtain the same level of performance as that offered by IDLC. The price of such an unbundled loop shall be established so that it is no more than the equivalent of the loop and port cost associated with an IDLC connection, plus, if supportable, any reasonable provisioning cost consistent with the Act, the Eighth Circuit Court of Appeals' decision in Iowa Utilities Bd., et al v. F.C.C., 120 F.3d 753 (8th Cir. 1997, and all decisions in this proceeding.

14. The price of the switched port shall include all features. BST shall amend its switched cost studies in the following manner: (1) use the output from the marginal mode of SCIS/MO, (2) recalculate switched usage charges per minute of use using the following formula: Total switched investments, less nontraffic sensitive line termination and getting started investments, divided by minutes equivalent of busy hours CCS; (3) change vendor discounts used as inputs in the BST switched cost studies to the percentages given on line 6, page 19 of Ms. Petzinger's pre-filed rebuttal testimony; and (4) assume 70.38% IDLC and 29.62% analog line terminations in calculating switching

port costs. Additionally, the price of the switched port shall include all features with no additional charges, specifically no "glue" charges.

15. BST's TELRIC Calculator model shall be adjusted to reflect three (3) other entities equally sharing aerial support structures (poles) with BST for a total of four (4). The Hatfield model shall be adjusted to reflect one (1) other entity sharing the buried distribution structures with BST for a total of two (2).

16. For all cost models, the Operational Support Systems costs shall be recovered from all carriers (ILEC, CLEC, etc.) in a recurring rate. All expenses associated with the Electronic Interfaces (development expenses, hardware equipment, maintenance expenses associated with new systems and program enhancements to four (4) Legacy Systems) should be capitalized and recovered over the life of OSS using depreciation lives adopted in Issue 5. A fallout rate of 7% should be used in the TELRIC Calculator cost model.

17. Only directly assignable costs may be recovered through nonrecurring charges. All shared and common costs shall be removed from the nonrecurring cost models. All Operational Support Services costs shall be removed from the nonrecurring cost models. For both cost models, Operational Support Service costs associated with all activities shall reflect a 7% fallout rate. Additionally, BST should modify its cost model to reflect only three (3) minutes of work activity per order at the Local Customer Service Center when an order falls out. There are no ordered adjustments for the recovery of cross connect costs. The BST cost model shall be adjusted to recover all costs associated with testing in recurring rates.

18. Disconnect costs shall be separated from installation costs and assessed at the time of disconnection. BST shall calculate and charge separate nonrecurring rates for installation and physical disconnection. In a soft dial tone environment, there shall be no physical disconnection charges.

19. The Authority adopts the AT&T and MCI collocation approach for calculating the rates for physical collocation. The AT&T and MCI collocation model shall be adjusted to increase the width of the common area space in accordance with the Standard State Building Code, this would increase the width of the common area by fourteen inches (14") from seven feet six inches (7'6") to eight feet eight inches (8'8").

20. Parties shall file cost studies to reflect these findings within thirty (30) days of the date of this Order.

21. Any party aggrieved by this Interim Order may file a Petition for Reconsideration with the Authority within ten (10) days of the date of this Order.

CHAIRMAN

DIRECTOR

DIRECTOR

ATTEST:

EXECUTIVE SECRETARY